

*DDRC Ink - February 2005*  
*The Journal of the Darling Downs*  
*Radio Club Inc.*

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**Dates to Remember:**

12 February	DDRC Social Lunch. 11:30 AM for 12 noon start. Delacy's Hotel, 224 Ruthven Street.
12 February	Asia-Pacific CW Sprint, 40 & 20 metres.
12-13 February	RSGB 160 Metre Contest, CW.
14 February	DDRC February Management Committee Meeting (visitors welcome) 7:30 PM SES Headquarters.
19-20 February	ARRL DX Contest, CW.
20 February	Central Coast Field Day, Wyong, NSW. Australia's biggest hamfest & flea market.
26-27 February	CQ Magazine 160 Metre Contest, SSB.
28 February	DDRC February Social/Technical Meeting, 7:30 PM SES Headquarters. Program: "A Towering Experience" Ian, VK4KAD will discuss his tower-raising endeavours.
5-6 March	ARRL DX Contest, SSB.
12-13 March	RSGB Commonwealth Contest.
14 March	DDRC March Management Committee Meeting (visitors welcome) 7:30 PM SES Headquarters.
19-20 March	John Moyle Field Day. 0100Z Saturday to 0059Z Sunday.
26-27 March	CQ Magazine WPX Contest, SSB.
28 March	DDRC March Social/Technical Meeting, 7:30 PM SES Headquarters. Program: "Charging Batteries From Solar Panels" This is a user discussion forum. Please bring any data you may have that would assist us to get optimum results for our club repeaters.
9 April	DDRC Social Lunch, 11:30 AM for 12 noon start, venue TBA.
11 April	DDRC April Management Committee Meeting (visitors welcome) 7:30 PM SES Headquarters.
25 April	DDRC April Social/Technical Meeting, 7:30 PM SES Headquarters. Program: "Show and Tell". Please bring along anything electronic-related that you feel would be of interest to our members.
30 April-1 May	Claireview Ham Weekend.
7 May	BARCFEST – Flea Market, Mt. Gravatt Bowls Club, Brisbane.

SES Headquarters is located at 172 Stephen Street, Toowoomba, just east of Anzac Avenue.

***In Memorium***

It is with deep regret that we report the passing of Ben Ter Hoeven, VK4APT. Ben was associated with the DDRC almost from its onset, and served two stints as President. He was a regular at club meetings and on the 80 metre net until shortly before his death.

## **President's Corner**

Hello again, though it's from town this time. The club has once again a full calendar and we also have the social lunches on regularly. I have been catching up with the nets and even managing to visit some local hams. Maybe I will even get to the February lunch before work claims me again.

Ben Ter Hoeven passed away in December. We have lost another long time club member. Ben's family have donated his gear to the club for disposal so check further on in this newsletter for details.

Soon there will be new regulations including the details of the new Foundation Class licence. I hope we can find out more of what is involved (the DDRC Inc may be expected to hold 1 day introductions) and have some presentation to a club social/technical gathering. With our full calendar it may be June or later before this happens.

With the change from "Federal" to "National WIA", there has been some extra paper work coming through for affiliation and possible change to our public liability insurance. Once completed we may save some cost on these. If interested talk to a committee member. As president I have always been keen to raise public awareness of Amateur Radio, so if you have suggestions or can donate some time please again talk to your committee members.

73

Dougal  
VK4EKA

## **January Program**

Members were treated to a viewing of the fascinating documentary "Empires of the Air", about three early pioneers of radio: Lee de Forest, David Sarnoff and Edwin Armstrong. "Eccentric" hardly begins to describe the personal attributes of these obviously brilliant, but socially awkward radio pioneers. Something about radio must attract that particular breed....except for me and thee, of course!

## **Wyang Coach Tour**

Sadly, due to insufficient interest, the coach booking has had to be cancelled. Maybe next year...Several Darling Downs amateurs will be in attendance at Wyong this year, and will no doubt extol the virtues of the annual pilgrimage to us once they return. Start saving now!

## **What's Happening With IRLP?**

Some of you may have noticed of late that the "foreigners" (except me!) have been conspicuous by their absence on VK4RTW repeater. Though now officially a resident of Ipswich, the repeater's custodian, Andrew, VK4ZAN, has committed to keeping the Toowoomba repeater alive, though in a slightly altered configuration. Andrew envisions

a network of three hard-linked UHF repeaters providing continuous coverage from the Gold Coast to Dalby. The IRLP net connection will be administered from his place of work in Ipswich via a 90 km UHF point-to-point link. This will certainly be more convenient for Andrew than a 200 km round trip when the interface box requires a reset. Andrew's day gig now entails keeping more than 30 AM and FM broadcast transmitters on the air, so you will understand if he gives you a blank look when you mention the phrase "spare time" to him.

## **New Packet BBS in Toowoomba -VK4HMD**

Martin, VK4HMD, has been working quietly behind the scenes of late to provide the Darling Downs with a reliable **STABLE** packet BBS. Those of you into the packet racket know the frustration of attaching yourself to a BBS east of here, changing your mail forwarding, then watching the BBS fold a few months later. To my knowledge, this has happened at least 4 times in the last year alone! On top of that, somewhat arbitrary censorship of messages is common through the Brisbane portals. The BBS is up and running on 144.825 MHz 1200 baud (yes, the same frequency as VK4RZD) now – give it a try!

## **To the Moon and Back**

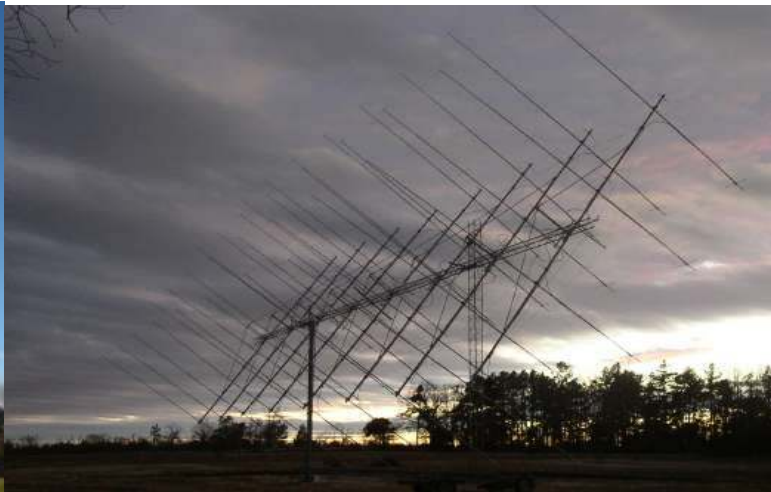
In the wee hours of the morning on December 4<sup>th</sup>, Phil, VK4CDI and Dave, W5UN completed what may have very well been the very first moonbounce QSO ever from our club region on 2 metres, using a relatively new digital mode known as WSJT65. An earlier arranged sked had failed due largely to pilot error at this end, but the totally random contact December 4<sup>th</sup> was completed in less than 20 minutes, with excellent "waterfall" signals seen at both ends. WSJT65 has opened up new possibilities for relatively low power stations to participate in this exotic pastime, as signals well below the threshold of good CW copy can be seen and decoded. While Phil is running relatively modest power and a single yagi, his QSO partner, W5UN, is the undisputed "top gun" of moonbounce (or "EME"[earth-moon-earth] as they prefer to call it), with 32 phased long-boom yagis and several kilowatts of RF on transmit. At 794,000 kilometres round trip, this is beyond a doubt Phil's best DX ever. The path length is so long that slightly better-equipped stations than Phil can send off a test transmission, flick over to "receive", wait a couple of seconds, then hear (or see) their own signals come back from the moon!

To prove that this QSO was no fluke, Phil rapidly followed it up with a random QSO with Dmitry, RA3AQ, near Moscow. Dmitry is more of a "little pistol" rather than a big gun, running "only" 6 yagis, (each 43 feet long!) with independent horizontal and vertical elements, important on EME, where the polarity of incoming signals is anybody's guess. Dmitry backs this up on transmit with a big Russian triode amp: 4000 volts at 1.25 amps on the anode. You do the math...

Not long after, Phil worked another Russian, and an Italian station. Hmmm...his 2 metre DXCC totals for the month are edging closer to some of our **20**-metre totals!



RA3AQ's Modest EME Array



W5UN's "MBA" (Mighty Big Array)

## A CQ Request to Boost VHF/UHF SSB DX

The hot and sticky summer months in Queensland are accompanied with good propagation openings on VHF and UHF bands. A lot of operators are content with just doing the odd DX contact on FM, however according to John VK4AJS, and others those operators are missing out on the much expanded DX world of SSB operation. John reports that he and a lot of other operators in the Central Queensland region have been having good and regular contacts to southern operators. However, even though conditions to the north are more intense and more consistent, there are far less contacts made mainly because northern operators are reluctant to dip their toes into the world of SSB DX. John operates out of Yeppoon in Central Queensland and reports regular SSB contacts with John VK4FNQ at Selheim in North Queensland. He reckons it is time for the northern stations to get game and be keen to join in with the promise of good results!

Heres a list of the Central Queensland operators and the bands they are working SSB on -  
John VK4AJS from Yeppoon on 144, 432 and 1296 MHz  
Ray VK4BLK from Yeppoon on 144 MHz  
John VK4KK between Yeppoon and Emu Park on 144 MHz  
Glen VK4TZL from Hervey Bay on 144, 432 and 1296 MHz  
Rob VK4TWR from Gladstone on 144 MHz  
Mike VK4JOO from Gladstone on 144 and 432 MHz  
Tony VK4CH from Hervey Bay on 144, 432 and 1296 MHz  
Wayne VK4ZRT from Gladstone on 144 and 432 MHz

Most of the operators are on air from 5 am to 7:30 am with skeds from Yeppoon southwards to Gladstone, Hervey Bay and Brisbane on Tuesday, Thursday, Saturday and Sunday at 6:50 am. The frequencies are 144.1, 432.1 and 1296.1MHz.

John also notes that it is a possibility that some of the contacts between Ray VK4BLK and John VK4FNQ are the result of aircraft enhancement of the path. If you are nervous about putting your toe into the SSB pond or want tips on how to operate this DX mode then John is eager to hear from you - either by email at [vk4ajs@optusnet.com.au](mailto:vk4ajs@optusnet.com.au) or by phone on 07 4939 5724 or 0412 989 530

*Compliments of the TARCinc Weekly News and VK4AJS*

## How to Get Going on APRS

In the last issue of DDRC Ink, we reported the opening of a new APRS gateway in Toowoomba. This month, a few words from Ron, VK4AGS and the Gladstone Amateur Radio Club publication "Radioactive" on how to get going on this little-known mode:

One of the prime capabilities of the APRS system is the tracking of mobile stations. Essentially this capability involves taking information from a GPS receiver, converting this into an APRS format, and transmitting it using the usual AX25 packet system. So essentially any mobile station needs a GPS unit capable of sending NMEA (i.e. the normal marine sentences), a suitable rig, and one of several devices capable of doing the conversion of the GPS data to packet data. The "top of the range" method mobile APRS transmissions are using the Kenwood DM-700 rig. This is a dual band (2m and 70cm) and dual transceiver rig with an inbuilt TNC. The GPS is simply plugged into the rig and the APRS settings configured. Since the DM-700 is essentially two transceivers in the one box, one transceiver can be set to data and the other set to voice. Kenwood also make a hand-held rig for APRS. It is the THD-7. It is also a dual rig and has most of the features of its bigger stable mate. Its main limitation is its much lower amount of RAM, which limits its normal packet operations, but its APRS activities are fine. Being full rigs, both Kenwood's not only transmit but also listen. They have LCD displays, which will display received positions as well as APRS messages. They also will forward received positions to the GPS, which some GPS models will store as waypoints. Another approach is to use one of the various "trackers". The tracker concept is where the information from a GPS unit is converted to APRS packets and these are sent to a rig. The main processing is done by a PIC. The most common configuration is a GPS, a TinyTrak 3, and a 2-mtr rig. These units only transmit positions. They have no messaging capability and have no receive functions. The TinyTrak 3 is capable of providing suitable packets for HF but it does need some filtering on the leads. All the trackers are configured by connection to PC so the configuration cannot be changed in the field unless you have a laptop with you.

Another configuration is to go mobile with the laptop or tablet computer. In this case the set-up is similar to a base station. A GPS is connected to a serial input on the computer, the computer connects to a packet TNC (or uses the inbuilt TNC in the Kenwood's), and the TNC connects to a rig. This approach works fine but has the problems of where to place the computer and how to power it. In addition, the hinge for the lid/screen of most laptops is not robust enough to survive the jolting of roads. One desirable configuration is not yet available. A rig with an inbuilt GPS would be very useful. To date no manufacturer is producing one.

## Club Disposals - Items From the Estate of Ben Ter Hoeven, VK4APT.

Rod Webb, VK4ZJ will be handling the disposal of these items. Rod may be contacted on 4635 1381.

27	Small magazine file boxes of magazines mostly Electronics Australia, Silicon Chip from 1993 to 2000 and some Nexus and ARA	Offers
1	Box of magazines and books	Offers over \$2
3	Boxes various electronics and radio communication books	Offers over \$2

1	A 510 Military Radio Trx and Rx with circuits and antennas in original carry box	\$100
1	Spare Trx and Rx units for A510	\$70
1	Box sundry pipe hardware	\$10
1	Box small antenna hardware	\$5
1	Box RTTY fittings and plastic cases	\$10
1	Small box assorted video cables/switchers and accessories	\$10
1	Box sundry circuit boards/parts/components	Give away
1	Box coax cable lengths and wire antennas	\$20
1	Box sundry antenna cables	\$5
1	Box antenna hardware	\$8
2	CB Radios National Panasonic 9 channel	\$25/pr
1	DSE single beam CRO part number Q1280	\$105
1	assembled Electronics Australia/DSE tuner/matcher no. K6100	\$10
1	Galbraith Iambic paddle in box with keyer (9 volt)	\$45
1	Lutron FC 1200 Frequency Counter – 10Hz to 1200Mhz	\$120
1	Box coax switches, antenna patch cables and speaker	\$10
1	Homemade approx 5Amp Regulated Power Supply	\$35
1	Kenwood TR 7200 G 2m FM 6 xtals w. repeater offsets 10/1w w. manual \$55	\$55
1	Kenwood TR 8400 UHF FM VFO 4 memory channels repeater offsets 10 watts/1 watt, with manual	\$175
1	Micronta FET volt/ohmmeter	\$40
1	Small dummy load 52 ohm 13w	\$5
1	Oscillator box and BFO	\$6
1	30Mhz Low Pass Filter	\$15
1	Electronics Australia Kit TV/CRO Adaptor	\$5
1	Matcher and dummy load (29w)	\$10
1	Black and White TV going but tuner needs cleaning	\$10
2	HF mobile antenna mounts (2) with mobile section and tuning coils for 80mx and 15mx (one mount needs reconnecting)	\$35 pr.
1	TV – uhf and vhf antenna (band 5 and ch1 to 5 vhf)	\$30
Misc.	TV masting	Offers
1	2 mtr. 5/8ths over 5/8ths collinear antenna	\$25
2	FM Broadcast receive antennas 4 element	\$25 ea.

## Welcome To Our Newest Members

**Ken Hoffman, VK4KH:** "I guess you could call me a reborn member of the DDRC. I was one of the foundation members when this happened a long time ago. Work and family matters took over my life at various times amateur radio has slowly taken a back seat. These days operation is confined to a few regular skeds and popping up occasionally on the repeater to make my presence known. I enjoy the technical aspects of the hobby and would like more time to do further experimenting. Hopefully, when I retire near the end of the year, more time will be available. I plan to do a lot of tripping with

the 4WD and caravan during retirement. I usually take a HF rig with so I can keep in contact with my son, VK4SKH".

**Peter Butler VK4APB:** "I was first licensed in New Zealand - July 1956. I was active on lower HF bands in NZ and the Pacific till 1974. I settled in Australia and, after a period of non-activity, obtained my present call in 1978. I have not been active now for some years, but hope to get back on air again in the near future. I am married with a grown-up family, some living as close as "The Downs", others as far away as Melbourne. There are many grandchildren. I have been involved in various aspects of electronics for most of my working life, and although now semi-retired I still enjoy 'tinkering'. My main interest still lies with valves, and much time is spent successfully reviving older valve gear. A lot of my waking hours are spent clearing our small block of lantana - by hand - good outdoor exercise, and as strange as it may sound – satisfying".

## **A Blast Into Space and Into Our Past With Our Own VK4ECT**

Club member Eric, VK4ECT was an integral part of this first-ever RAAF to space shuttle communications link-up. Dateline: 1991!

### **RAAF Williams and STS-37 "Atlantis"**

*Harry Stockdale VK3TGE, Peter Ormerod VK3CPO & Bruce Kendall VK3WL*

The RAAF Williams Amateur Radio Club VK3APP, situated at Laverton, Victoria, has chalked up another first for the Royal Australian Air Force.

The club, which was re-formed in October 1990, has become the first RAAF club to communicate successfully with an orbiting spacecraft.

Members of the club discovered that the recent Space Shuttle mission STS-37 (Atlantis) included a program designed to allow Australian school students to talk to crewmembers of "Atlantis" during the mission. Three orbits were dedicated to the program. These were orbits 14, 29 and 59, with one station each from the west, central and east Australian participating on each pass.

The club made application on behalf of the RAAF School of Radio at Laverton to participate in the program and was successful in its application. A total of only nine stations/schools throughout Australia were able to take part in the trials. These were VK6KAE/Northampton, VK5AGR/Adelaide, VK3APP/Laverton, VK6FT/Geraldton, VK3YXK/Geelong, VK2EMU/Hurstville, VK6BMD/Perth, VK3CFI/Colac and VK4JON/Innisfail.

VK3APP was allocated orbit 14, our window of which occurred just 18.5 hours after launch, at 2125 local on Saturday, 6 April 1991.

In the days leading up to the launch, members of the club monitored "Voice of America" transmissions and the AMSAT AUSTRALIA net to determine the exact time of "lift off". When the launch was confirmed, computations were run to determine accurately the time for our allotted window.

Students from the School of Radio chosen as representatives to make the attempt included two radio apprentices, one adult trainee and a communications operator trainee.

Each of the representatives was required to attend a club meeting prior to the attempt to discuss the radio procedures that would be used during the contact (and to work out what they were going to say to the astronauts).

At his point, orbit 13 was taking place, and one of the astronauts, Ken KB4AWP, put out a call "is there anybody down there?", to which a reply was sent from VK3APP. To the best of our knowledge at this stage, a two-way QSO did take place confirming that our station was working satisfactorily.

The shuttle traversed the night sky from west to east at an altitude of approximately 450km and at a distance from Laverton of around 1200km. From horizon to horizon the pass lasted only 10 minutes. Of that time, only five minutes were available for the attempt.

As Atlantis rose above the western horizon, it could be clearly heard talking to the VK6 station, and then the moment that we had all been waiting for, "Victor Kilo Three Alpha Papa Papa this is KB5AWP Atlantis calling, so you copy?".

The station operator chosen for the attempt, Peter Ormerod VK3CPO responded to the call and then passed the microphone to apprentice Nigel Gilchrist to carry on the contact.

During the contact, Wing Commander Val Robinson the Commanding Officer of the RAAF School of Radio, listened intently as his students created a little history.

At about this time Murphy entered the fray. Prior to orbit 13, Peter VK3CPO had operated with a TR9130 feeding five watts into a DSE 100-watt power amplifier. Receiver input was via a Kuranishi Instruments GaAs FET GA-2 preamplifier. This equipment line-up appeared to be working fine. During the interval between orbits 13 and 14, Murphy #1, in the form of the owner of the power amplifier (we know who he is!) turned this piece of equipment OFF. When it was our turn to QSO with Atlantis, Peter VK3CPO presumed that the station configuration was as he had left it after the orbit 13 contact.

The following rapid sequence of events occurred:

- \* The first couple of attempts to make contact with "Atlantis" took place with only 5 watts from the TR9130. As a result, we were not heard.

- \* At some time during the next few tries the TR9130 was accidentally switched to 25 watts (bear in mind that prior to and during the attempt Peter had no fewer than four television cameras and many microphones from the media contingent on all four sides of the operating position, which would have heightened the adrenalin flow somewhat).

- \* Not long after this, Peter noticed that the linear was OFF and immediately switched it back on, but, in the heat of the moment, did not turn the 2m transceiver back to the 5W power setting. Thereafter, Ken KB5AWP on board "Atlantis" could certainly hear us! But not for long.

- \* For a couple of overs we had near perfect two-way communications. Information about our club and that four students would be asking questions was relayed.

\* Enter Murphy #2. The 20-amp power supply only had a 15-amp fuse in the secondary line! This was unknown to us at the time and didn't cross anybody's mind, as it had not been cause for concern during any of the prior test transmissions. With the 2m transceiver 25 watts, the linear (100W?), and the preamp all drawing just a little bit of current, the 15-amp fuse decided, space shuttle or no space shuttle, it was time to pull the pin and blow!

At this point, Peter, who quickly rose to the occasion, transferred operation to the standby equipment. This consisted of an Icom IC-3210 and a 12V truck battery (no power supply problems here!).

Apprentice Nigel Gilchrist finally got to ask Ken some questions, and received a reply just prior to the shuttle disappearing over the horizon.

The five astronauts aboard "Atlantis" were Steve Nagel N5RAW, Ken Cameron KB5AWP, Jay Apt N5QWL, Linda Goodwin N5RAX and Jerry Ross N5SCW.

The station equipment for this attempt was as follows:

Primary station: Kenwood TR9130 52/25W, DSE 100W linear, Kuranishi Instruments GA-2 GaAS FET preamplifier, 12VDC 20A power supply, six-element vertically polarised Yagi antenna at 60 feet and a 5/8 ground plane antenna at 20 feet.

Secondary station: Icom IC3210 5W/25W, 12VDC battery, five-element horizontal polarised Yagi at 55 feet. Despite the mixed success of the attempt, a two-way QSO did take place and it was a valuable learning experience for all concerned.

The media coverage that was gained for our hobby was invaluable and again demonstrated to the general public what amateur radio is capable of achieving.

Steps are also being undertaken to ensure better success, if there is a next time. At the least, the club will end up with an improved OSCAR station. In addition, every skerrick of equipment will be checked inside and out before the event. Remember Murphy's Law.

*This story first appeared in the Wireless Institute's Amateur Radio (AR) magazine in June 1991.*

## **From the Pink QSL Department**

You're banging along on CW on 3535 kHz, and "yer mate" suggests swapping over to SSB. What's wrong with this picture? The WIA band plan clearly says that the "gentlemen's agreement" line between CW and SSB is 3535, so no problem, right? Wrong! You're on lower sideband (presumably), and your signal is a nominal 3 kHz wide. Congratulations – you've just wiped out 8.5% of the CW allocation. With CW allocated only 16% of the available 80-metre spectrum, you'll understand if the inhabitants are a little bit testy about SSB incursions. Attempting to pull the same stunt in the DX window, transmitting on, say 3776 kHz LSB would rightfully earn you the dreaded "pink QSL", as your emissions are not even fully contained within the band! Being "on frequency" involves a little more than being able to read that fancy Yaecomwood digital readout!

## CW QRP Club Seeks Donations of Surplus Crystals

The CW QRP Operator's Club of Australia, the main body of homebrewers in VK, is looking to launch a worldwide database of surplus crystals. Obviously, the more crystals that get registered, the more likelihood that you will be able to find something in someone's crystal bin (anywhere on the planet!) to suit your current homebrew project. This is a free service offered by the club, and listing can take one of two forms:

- 1) Outright donation. As it happens, the inventory of donated crystals is located at the QTH of John, VK4TJ, so logistics will be a snap.
- 2) Registration. You can provide CW QRP Ops with a list of the crystals you possess, and have potential swap or purchase partners contact you. Be realistic in your pricing however – you will be competing against CW QRP Ops club, who give theirs away ....free! (With a few conditions).

If you'd like to see the current inventory, browse:

<http://users.senet.com.au/~don911/coqc/webxtals/index.html>

Rod, VK4ZJ, and Roy, VK4RE can attest to the viability of the whole concept, as they were recently able to source a replacement carrier oscillator crystal for an oldie-but-goody Yaesu FT-200 HF transceiver to bring it back to life. Over twenty 6 and 2 metre propagation beacons were also crystallised out of this self-same stash before the project kicked off.

### Your Management Committee:

President	Dougal Johnston, VK4EKA	4697 9280
Vice-President	Rex Testoni, VK4ART	4630 8477
Secretary	Theo Möller, VK4ESK	4691 0298
Treasurer	Ivan Bachmann, VK4BIB	4635 2816

Steering Committee: Rod Webb, VK4ZJ, Graham Linnett VK4YNG, Terry Walters, VK4KTP, Kevin Crandell VK4VKX.

Repeater Committee: Andrew Chapman, VK4ZAN

Newsletter Editor: John Kirk, VK4TJ email: [vk4tj@hotmail.com](mailto:vk4tj@hotmail.com) or phone 4635 4553.

Publicity Officer: vacant. Alternate contact is Theo Möller, VK4ESK 4691 0298.

Station Manager: Tom Walker, VK4BTW

Net Conveners:

80 metres, 7:30 PM Saturdays on 3.587 MHz +/- QRM – Theo Möller VK4ESK using club call VK4WID.

2 metres, 10:00 AM Sundays on 146.750 (-600) – Tom Walker, VK4BTW using club call sign VK4WID.

Club Repeaters: DDRC Inc. maintains two open repeaters in memory of Arch Marshall, both employing the call VK4RDD.

2 metres: 146.750 MHz, 600 kHz negative offset for TX, southeast of Toowoomba.

70 cm: 439.275 MHz, 5 MHz negative offset, southeast of Toowoomba.

Though not directly affiliated with the club, there is a third repeater in Toowoomba: VK4RTW, 439.625 MHz, 5 MHz negative offset, linked to VK4RIL, Laidley, 147.700 MHz, 600 kHz negative offset for TX.